

$$D_s^{*\pm}$$

$$I(J^P) = 0(?^?)$$

J^P is natural, width and decay modes consistent with 1^- .

NODE=S074

NODE=S074

$D_s^{*\pm}$ MASS

The fit includes D^\pm , D^0 , D_s^\pm , $D^{*\pm}$, D^{*0} , $D_s^{*\pm}$, $D_1(2420)^0$, $D_2^*(2460)^0$, and $D_{s1}(2536)^\pm$ mass and mass difference measurements.

NODE=S074M

NODE=S074M

VALUE (MeV)	DOCUMENT ID	TECN	COMMENT
2112.3 ± 0.5 OUR FIT	Error includes scale factor of 1.1.		
2106.6 ± 2.1 ± 2.7	¹ BLAYLOCK	87	MRK3 $e^+ e^- \rightarrow D_s^\pm \gamma X$
¹ Assuming D_s^\pm mass = 1968.7 ± 0.9 MeV.			

NODE=S074M

NODE=S074M;LINKAGE=E

$m_{D_s^{*\pm}} - m_{D_s^\pm}$

The fit includes D^\pm , D^0 , D_s^\pm , $D^{*\pm}$, D^{*0} , $D_s^{*\pm}$, $D_1(2420)^0$, $D_2^*(2460)^0$, and $D_{s1}(2536)^\pm$ mass and mass difference measurements.

NODE=S074DM

NODE=S074DM

VALUE (MeV)	EVTS	DOCUMENT ID	TECN	COMMENT
143.8 ± 0.4 OUR FIT				
143.9 ± 0.4 OUR AVERAGE				
143.76 ± 0.39 ± 0.40		GRONBERG	95	CLE2 $e^+ e^-$
144.22 ± 0.47 ± 0.37		BROWN	94	CLE2 $e^+ e^-$
142.5 ± 0.8 ± 1.5		² ALBRECHT	88	ARG $e^+ e^- \rightarrow D_s^\pm \gamma X$
139.5 ± 8.3 ± 9.7	60	AIHARA	84D	TPC $e^+ e^- \rightarrow$ hadrons
• • • We do not use the following data for averages, fits, limits, etc. • • •				
143.0 ± 18.0	8	ASRATYAN	85	HLBC FNAL 15-ft, ν - ² H
110 ± 46		BRANDELIK	79	DASP $e^+ e^- \rightarrow D_s^\pm \gamma X$
² Result includes data of ALBRECHT 84B.				

NODE=S074DM

NODE=S074DM;LINKAGE=A

$D_s^{*\pm}$ WIDTH

VALUE (MeV)	CL%	DOCUMENT ID	TECN	COMMENT
< 1.9	90	GRONBERG	95	CLE2 $e^+ e^-$
< 4.5	90	ALBRECHT	88	ARG $E_{cm}^{ee} = 10.2$ GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •				
< 4.9	90	BROWN	94	CLE2 $e^+ e^-$
< 22	90	BLAYLOCK	87	MRK3 $e^+ e^- \rightarrow D_s^\pm \gamma X$

NODE=S074W

NODE=S074W

D_s^{*+} DECAY MODES

D_s^{*-} modes are charge conjugates of the modes below.

NODE=S074215;NODE=S074

NODE=S074

Mode	Fraction (Γ_i/Γ)
Γ_1 $D_s^+ \gamma$	(94.2 ± 0.7) %
Γ_2 $D_s^+ \pi^0$	(5.8 ± 0.7) %

DESIG=1

DESIG=2

CONSTRAINED FIT INFORMATION

An overall fit to a branching ratio uses 2 measurements and one constraint to determine 2 parameters. The overall fit has a $\chi^2 = 0.0$ for 1 degrees of freedom.

The following *off-diagonal* array elements are the correlation coefficients $\langle \delta x_i \delta x_j \rangle / (\delta x_i \cdot \delta x_j)$, in percent, from the fit to the branching fractions, $x_i \equiv \Gamma_i / \Gamma_{\text{total}}$. The fit constrains the x_i whose labels appear in this array to sum to one.

$$x_2 \begin{vmatrix} -100 \\ x_1 \end{vmatrix}$$

D_s^{*+} BRANCHING RATIOS

NODE=S074220

$\Gamma(D_s^+ \gamma) / \Gamma_{\text{total}}$ Γ_1 / Γ
 VALUE EVTS DOCUMENT ID TECN COMMENT

NODE=S074R1
NODE=S074R1**0.942±0.007 OUR FIT**

• • • We do not use the following data for averages, fits, limits, etc. • • •

0.942±0.004±0.006	16k	³ AUBERT,BE	05G	BABR	10.6 $e^+ e^- \rightarrow$ hadrons
seen		ASRATYAN	91	HLBC	$\bar{\nu}_\mu$ Ne
seen		ALBRECHT	88	ARG	$e^+ e^- \rightarrow D_s^\pm \gamma X$
seen		AIHARA	84D		
seen		ALBRECHT	84B		
seen		BRANDELIK	79		

$\Gamma(D_s^+ \pi^0) / \Gamma_{\text{total}}$ Γ_2 / Γ
 VALUE EVTS DOCUMENT ID TECN COMMENT

NODE=S074R3
NODE=S074R3

• • • We do not use the following data for averages, fits, limits, etc. • • •

0.059±0.004±0.006	560	³ AUBERT,BE	05G	BABR	10.6 $e^+ e^- \rightarrow$ hadrons
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$\Gamma(D_s^+ \pi^0) / \Gamma(D_s^+ \gamma)$ Γ_2 / Γ_1
 VALUE DOCUMENT ID TECN COMMENT

NODE=S074R2
NODE=S074R2**0.062±0.008 OUR FIT****0.062±0.008 OUR AVERAGE**

0.062±0.005±0.006		AUBERT,BE	05G	BABR	10.6 $e^+ e^- \rightarrow$ hadrons
0.062 ^{+0.020} _{-0.018} ±0.022		GRONBERG	95	CLE2	$e^+ e^-$

³Derived from the ratio $\Gamma(D_s^+ \pi^0) / \Gamma(D_s^+ \gamma)$ assuming that the branching fractions of $D_s^{*+} \rightarrow D_s^+ \pi^0$ and $D_s^{*+} \rightarrow D_s^+ \gamma$ decays sum to 100%.

NODE=S074R;LINKAGE=AU

 $D_s^{*\pm}$ REFERENCES

NODE=S074

AUBERT,BE	05G	PR D72 091101	B. Aubert <i>et al.</i>	(BABAR Collab.)	REFID=50942
GRONBERG	95	PRL 75 3232	J. Gronberg <i>et al.</i>	(CLEO Collab.)	REFID=44568
BROWN	94	PR D50 1884	D. Brown <i>et al.</i>	(CLEO Collab.)	REFID=43868
ASRATYAN	91	PL B257 525	A.E. Asratyan <i>et al.</i>	(ITEP, BELG, SACL+)	REFID=41582
ALBRECHT	88	PL B207 349	H. Albrecht <i>et al.</i>	(ARGUS Collab.)	REFID=40269
BLAYLOCK	87	PRL 58 2171	G.T. Blaylock <i>et al.</i>	(Mark III Collab.)	REFID=40005
ASRATYAN	85	PL 156B 441	A.E. Asratyan <i>et al.</i>	(ITEP, SERP)	REFID=22887
AIHARA	84D	PRL 53 2465	H. Aihara <i>et al.</i>	(TPC Collab.)	REFID=11561
ALBRECHT	84B	PL 146B 111	H. Albrecht <i>et al.</i>	(ARGUS Collab.)	REFID=22886
BRANDELIK	79	PL 80B 412	R. Brandelik <i>et al.</i>	(DASP Collab.)	REFID=11442